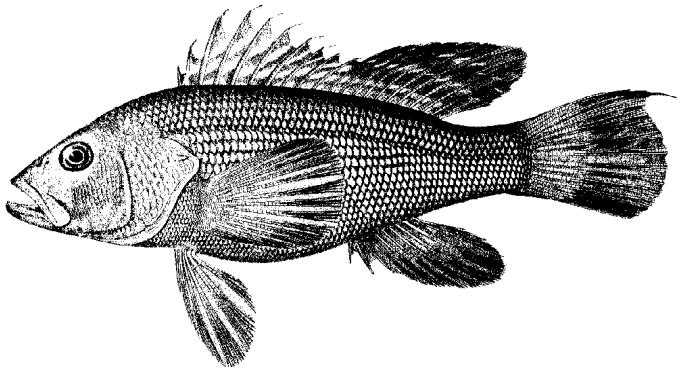

Last Revised: January 2000

Summary Status

Landings and Abundance Trends

Landings Data

Black Sea Bass

by

Gary Shepherd

Black sea bass, *Centropristis striata*, occur along the entire U.S. Atlantic coast. Two stocks have been recognized, one north and the other south of Cape Hatteras, North Carolina. The northern group winters along the 100 m (55 fathom) depth contour off Virginia and Maryland, and then migrates north and west into inshore waters, where it becomes associated with structured bottom habitat (reefs, oyster beds, and wrecks, for example.

Spawning begins in March off North Carolina and occurs progressively later (until October) further north. Most black sea bass begin life as females and later transform into males, and most individuals (both sexes) attain sexual maturity by age 3. Transformation from female to male generally occurs between ages 2 and 5. Females are rarely found older than 8 years (>35 cm or 14 in.), while males may live up to 15 years (>60 cm or 24 in.). Black sea bass are omnivorous, feeding on crustaceans, molluscs, echinoderms, fish, and plants.

The principal commercial fishing gears used to catch black sea bass are otter trawls and fish pots. Recreational fishing is significant. Black sea bass are managed under Amendment 12 to the Summer Flounder Fishery Management Plan or FMP (now known as the Summer Flounder, Scup, and Black Sea Bass FMP). Management measures under the FMP include a moratorium on new permits, gear restrictions and minimum fish sizes, a coastwide commercial quota and a recreational harvest limit.

Total nominal catch north of Cape Hatteras decreased from 4,300 mt in 1996 to 1,800 mt in 1998. Commercial landings fluctuated around 2,600 mt from 1887 until 1948 and then increased to 9,900 mt in 1952 before declining to only 600 mt in 1971. Between 1980 and 1993, commercial landings averaged 1,500 mt per year. Landings averaged 1,100 mt between 1994 and 1997 and totaled 1,200 mt in 1998. Landings since 1998 have been restricted by quota regulations. There has been no foreign fishing on this stock other than for a reported catch of 1,500 mt by distant-water fleets in 1964.

Estimated recreational landings, occurring primarily in the middle Atlantic states, are comparable in magnitude to those from the commercial fishery. Recreational landings averaged 2,000 mt per year between 1981 and 1997, and accounted for 31 to 79% of the total annual landings of black sea bass during those years. Recreational landings declined to 600 mt in 1998, a 68% decline from 1997. The decrease was partially attributable to an increase in minimum size from 9 in. to 10 in. total length.

The NEFSC spring bottom trawl survey biomass index increased during the early 1970s, peaking in 1977, but declined sharply between 1979 and 1982 to record-low levels. The index has increased somewhat since 1997 suggesting increased levels of biomass. Young of year (age 0) indices from the NEFSC autumn bottom trawl survey indicate that above-average year classes occurred in 1985, 1986, 1994 and 1995. Recruitment in 1999 appeared to be above average. Size composition data from commercial landings indicate that black sea bass recruit fully to the trap and trawl fisheries by ages 2 and 3, respectively.

Definitive estimates of fishing mortality are not available for 1998. Survey index values have increased somewhat in recent years, but remain well below the minimum biomass threshold (0.9 kg/tow). The stock is overfished and at a low biomass level.

For further information

Musick, J. A. and L. P. Mercer. 1977. Seasonal distribution of black sea bass, *Centropristis striata*, in the Mid-Atlantic Bight with comments on the ecology of fisheries of the species. *Trans. Am. Fish. Soc.* 106(1):12-25.

NEFSC [Northeast Fisheries Science Center]. 1997. [Report of the] 25th Stock Assessment Workshop (25th SAW), Stock Assessment Review Committee (SARC) consensus summary of assessments. *Northeast Fish. Sci. Cent. Ref. Doc*. 97-14:143p.

Shepherd, G. R. and J. S. Idoine. 1993. Length-based analyses of yield and spawning stock biomass per recruit for black sea bass, *Centropristis striata*, a protogynous hermaphrodite. *Fish. Bull.*, U.S. 91:328-337.

Summary Status

Long-term potential catch (MSY)	=	Unknown
Biomass corresponding to MSY	=	Unknown
Minimum biomass threshold[1]	=	0.9 kg/tow
Stock biomass in 1998	=	0.3 kg/tow (Implies an overfished condition)
F_{MSY}[2]	=	F_{MAX} = 0.32
F_{TARGET}	=	F associated with quota
Overfishing definition	=	F_{MSY}
F_{1998}	=	Unknown
Age at 50% maturity	=	2 years
Size at 50% maturity	=	19.0 cm (7.5 in.), males
		19.1 cm (7.5 in.), females
Assessment level	=	Index
Management	=	Summer Flounder, Scup, and Black Sea Bass FMP

M = 0.20 **$F_{0.1}$= 0.18** **F_{max}= 0.32**

[1] Maximum 3 year moving average of NEFSC Spring Survey exploitable biomass index (fish>22cm)

[2] F_{MAX} is used as a proxy for F_{MSY}

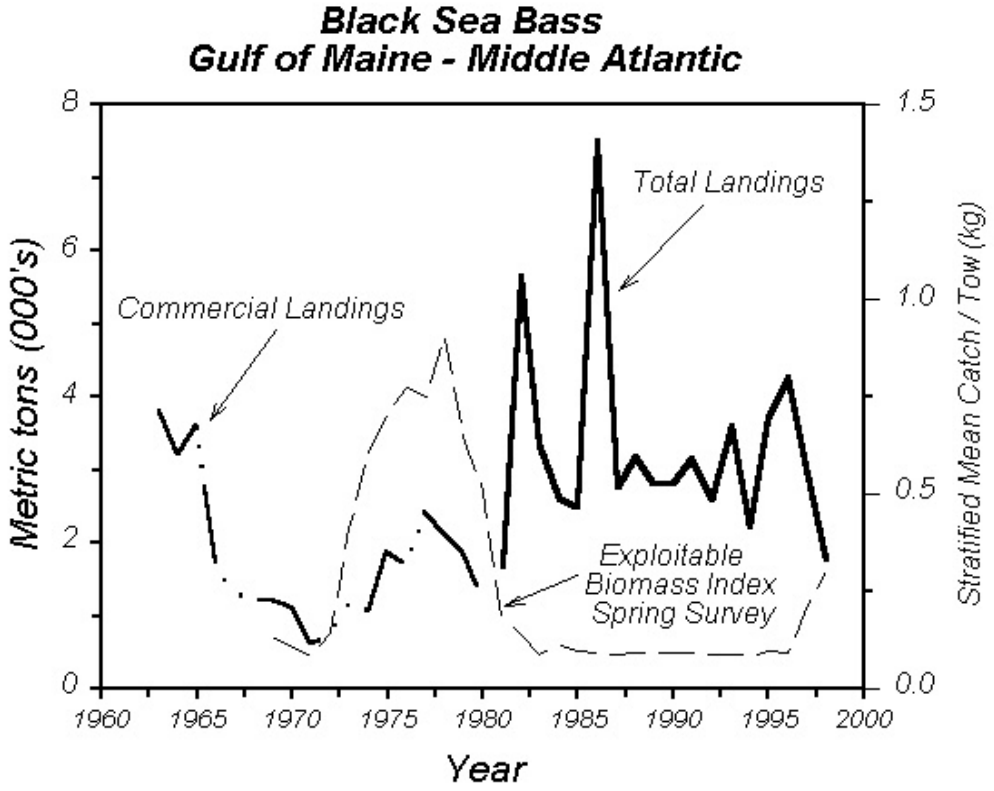

Table 15.1
Recreational and commercial landings (thousand metric tons)

		Year									
Category	1981-88 Average	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
United States	1.6	1.3	1.6	1.3	1.4	1.4	0.9	0.9	1.5	1.2	1.2
Canada	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-
Total nominal catch	3.6	2.8	2.9	3.2	2.6	3.6	2.2	3.7	4.3	3.1	1.8